ANTARCTIC EXPEDITION

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HEARING

BEFORE THE

COMMITTEE ON ARMED SERVICES
UNITED STATES SENATE

EIGHTY-THIRD CONGRESS

SECOND SESSION

ON

S. 3381

A BILL TO AUTHORIZE THE PRESIDENT TO PROVIDE ASSISTANCE TO AN EXPEDITION TO THE ANTARCTIC IN FURTHERANCE OF THE INTERESTS OF THE UNITED STATES

JULY 1, 1954

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ANTARCTIC EXPEDITION

THURSDAY, JULY 1, 1954

UNITED STATES SENATE,
COMMITTEE ON ARMED SERVICES,
Washington, D. C.

The committee met, pursuant to notice, at 11:15 a. m., in room 212, Senate Office Building.

Present: Senators Saltonstall (chairman), Case, Duff, Russell, Byrd, Stennis, and Jackson.

Also present: Philip K. Allen, chief clerk; Verne D. Mudge, and William H. Darden of the committee staff.

Chairman SALTONSTALL. The matter before us is a bill introduced by Senator Case to authorize the Government to contribute in the form of supplies and equipment to help support a scientific expedition into the Antarctic, and this bill was filed, I think, at the request of Capt. Finn Ronne.

There are also witnesses from the Navy Department, the Air Force and the State Department. The Chair has not gone into this bill at all, but the Chair understands that there are considerable diplomatic and technical thoughts or considerations that might be and, in fact, must be given very careful attention, and if the committee would bear with us for, say, 15 or 20 minutes more or a half hour more, let us hear Captain Ronne and hear what is behind the bill and then we will, perhaps, take it up with the official representatives of the various departments at a later date. Is that agreeable? If it is agreeable, then ask Captain Ronne to come in.

(The bill referred to follows:)

[S. 3381, 83d Cong., 2d sess.]

A BILL To authorize the President to provide assistance to an expedition to the Antarctic in furtherance of the interests of the United States

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the President is authorized to provide assistance in accordance with the provisions of this Act to the American Antarctic Association, Incorporated, a nonprofit, scientific organization incorporated under the laws of the State of Maryland, in order to enable such association to carry out an expedition to the Antarctic at an appropriate time between the dates of December 1, 1954, and May 31, 1958, for the purposes of—

(1) advancing the legitimate claims of the United States in the territory and resources of the Antarctic continent;

(2) determining the mineral and other resources available on such continent;

(3) establishing geodetic control points for the purpose of facilitating the utilization in mapmaking of the aerial photographs taken in the course of the United States Navy Antarctic development project, 1946–47;

(4) making aerial trimetrogon photographs of the unknown portions of the Antarctic continent for use in making maps of such portions;

(5) exploring unknown portions of such continent; and

(6) making scientific observations and surveys in the Antarctic.

SEC. 2. The assistance provided under this Act by the President shall be furnished upon such terms and conditions as he may deem appropriate in order to assure that the benefits to be derived by the United States from the making of such expedition shall be sufficient to justify any expenditures of public funds, any utilization of the services of Government civilian or military personnel, and any consumption or use of Government property or supplies which he may authorize for the purpose of enabling such expedition to be carried out.

SEC. 3. For the purposes of this Act, the President is authorized to—

(1) provide for the transfer to the American Antarctic Association, Incorporated, for use in connection with such expedition of not to exceed two naval vessels or other Government vessels of the AGB or N3–M–A1 class, of not to exceed four Government aircraft, of such Government motor vehicles and other facilities for surface transportation as may be necessary for transportation of the expedition parties on the Antarctic continent, and of such related and necessary equipment as may be required for the operation and maintenance of such vessels, aircraft, and facilities for surface transportation;

(2) provide for the use by such association in connection with such expedition of such Government clothing, emergency gear, scientific instruments cameras and related equipment, communications equipment, housing, and other supplies and equipment as he may deem necessary for the purposes of the expedition and as he may determine can be loaned for the purposes of such expedition without jeopardizing the national security;

(3) provide for furnishing to the association for consumption in the course of such expedition such food, gasoline, oil, and other supplies from Government stocks as he may deem necessary;

(4) provide for the procurement by any department or agency in the executive branch of the Government with funds appropriated pursuant to section 6 of this Act and for the furnishing to such association for use or consumption for the purposes of such expedition of any articles, materials, supplies, or equipment which he may determine to be unavailable in, or inadvisable to supply from, Government stocks;

(5) make grants to such association from funds appropriated pursuant to section 6 for such purposes in connection with the furtherance of such expedition as he may deem advisable; and

(6) permit Government military and civilian personnel, with their own consent, to accompany and to participate in the activities of such expedition while in a duty status.

SEC. 4. The President is authorized to impose as a condition upon the transfer or loan of any vessel, aircraft, vehicle, or equipment under the provisions of this Act a requirement that the American Antarctic Association, Incorporated, deposit with such official of the Government as the President may specify a bond with good and sufficient sureties to guarantee payment to the United States of such nominal charges as may be specified for the use of, and to reimburse the United States for damage to or loss of, any such vessel, aircraft, vehicle, or other equipment.

SEC. 5. The President shall make a full and complete report to the Congress on or before January 31, 1959, drawing on reports and material furnished him by the association on or before July 1, 1958, with respect to the administration of this Act and the results and accomplishments of the expedition assisted under its provisions.

SEC. 6. The appropriation of such sums, not in excess of $200,000, as may be necessary to enable the President to carry out the provisions of this Act is hereby authorized.

Chairman SALTONSTALL. Captain Ronne, will you take the chair at the other end of the table, and you other gentlemen and ladies, will you sit down.

Now, Captain, this has got to be, I'm afraid, rather brief because we are on the floor of the Senate and there are amendments coming up in which Members are interested. I know the Chair is interested in one, which may come up at any moment, and what the Chair thought was that if you would just give us a very brief outline of what you propose to do, this morning, then the committee could take up with the various departments of the Government and see

what was involved and, perhaps, proceed at a later date with another hearing. So, could you briefly summarize what is behind—what is your recommendation and thought on the subject; what do you want the Government to do.

Captain RONNE. Mr. Chairman, I have a prepared statement I would like to read, if possible.

Senator CASE. Mr. Chairman, I wonder if I might just make a little preliminary or introductory statement about the origin of the bill?

Chairman SALTONSTALL. We are very happy to have you do so.

Senator CASE. Mr. Chairman, I happened to meet Captain Ronne back in 1949 through some mutual friends in South Dakota, and I have enjoyed knowing him because I learned that he had been interested in the Antarctic through a lifetime; his father was with Captain Amundsen when he went to the Pole; Captain Ronne himself was with Admiral Richard Byrd on his second expedition to the Antarctic in 1933 and 1935; he led a party himself in 1946, and he was second in command of the east base of the United States Antarctic service expedition in 1939–41.

During the past 5 years, in several visits with Captain Ronne, I have been impressed by his zeal and by his consuming passion to further the interests of the United States in this great unexplored continent of the Antarctic.

I should like to say more to the committee and hope to on a further occasion, but I do want the committee to understand that this bill was introduced by myself in the Senate, by Congressman Tollefson of Washington in the House, following our personal acquaintance with Captain Ronne and the growing interest in his desire to see the United States strengthen its interests in the Antarctic.

I was tremendously impressed by the pictures which Captain Ronne took on his previous expedition, showing vast mountain ranges down there, and by his statements that there were no comparable geographical areas in the world known to have mountain ranges that did not carry with them extensive mineralization.

In the growing competition of other countries for perfecting their interests in that area, it seemed to me that we ought not to be asleep, we ought not to let our possible claims or the expansion of those claims go by default.

Captain Ronne's experience and abilities have been well tested. He is at a period in life where he could make a great contribution to the country by improving our claims there, and that led me to introduce the bill. Captain Ronne did not ask me to introduce the bill. I finally said to him one day, "How are we going to go further with this?" And he expressed some ideas about a plan to go down there to improve our claims. He had better tell about that, but growing out of that, I introduced the bill on my own initiative, and Congressman Tollefson did in the House.

Chairman SALTONSTALL. Thank you, Senator Case.

Now, Captain, the Chair is somewhat embarrassed at the moment for this reason—for two reasons: first, he is afraid that he and all members may be called over to the floor of the Senate any moment on a rollcall, because we have the important tax bill before us, and the Chair—the second reason he is embarrassed is because the first amend-

ment that may come up, he is personally interested in, and wants to take part in the debate if there is a debate.

The Chair wonders if, after the preliminary statement by Senator Case, it would be agreeable to put your very thoughtfully prepared brief here, which has been printed, into the record so that it will become a part of the public documents of the committee and would give evidence and an opportunity to the various departments of the Government to study it and to come forward with their prepared suggestions at a meeting of the committee, perhaps, after the holiday, and in the next couple of weeks?

Personally, the Chair believes that would be better than to have you start to read this statement to, perhaps, nobody left here but the Chair, which the Chair believes and he has a hunch, will happen very shortly.

Would it be agreeable to have us put that in the record so that it could be studied by the various groups, and then set another day for a hearing where you could argue this matter back and forth and hear the views of the various departments?

STATEMENT OF CAPT. FINN RONNE, CHAIRMAN OF THE BOARD, AMERICAN ANTARCTIC ASSOCIATION

Captain RONNE. Mr. Chairman, everything that you say is 100 percent all right with me. I am happy to have us do what you propose sir.

Chairman SALTONSTALL. That is very cooperative of you, and we are all impressed, I am sure, by this very carefully worked out document that you have given to us, and if that goes in the record, we will see that that gets to the Navy and the State Department, the Army and the Air Force, so that they can come forward, say, in about 10 days or 2 weeks' time and we will try to get all together here some morning at 10 o'clock and have a round-the-table discussion on this subject; is that agreeable to you, Senator Case?

Senator CASE. Mr. Chairman, may I inquire whether any departmental reports have been received, and if so what ones?

Chairman SALTONSTALL. General Mudge, could you tell Senator Case if any reports have been received on this subject from any department?

Mr. MUDGE. Yes, sir; I can tell you the ones that have not been received. The Department of State has not yet reported, but they have witnesses here this morning. The Department of Defense has their report, which has just been completed this morning. The Department of Commerce submitted a report which was not particularly pertinent one way or another, so far as expressing concurrence or not. The Department of the Interior has not yet reported, and the Atomic Energy Commission has not yet reported.

Chairman SALTONSTALL. Senator Case, with your approval, let us put these reports in the record of this morning's hearing together with the captain's report and then before we have our next hearing, we will ask General Mudge to get the reports from the other two departments so that we will have them all and, perhaps, we could send them around to the committees for their information too.

Senator CASE. Mr. Chairman, I would like to have a report from the Atomic Energy Commission, if possible. I know that Congress-

man Cole, the chairman of the committee, is very much interested in this whole matter.

Chairman SALTONSTALL. We will ask that Commission for a report too.

Mr. MUDGE. Yes, sir; they have been asked, and Commissioner Strauss said he had it under study and will try to get us the report as promptly as he could.

Chairman SALTONSTALL. It is a very interesting question that is raised by this, and the great question is how to do it and to do it right. Is that agreeable to you?

Senator CASE. Well, it is agreeable with me. I wish it weren't that the Senate were meeting; the Senate is in session now, meeting at 11 today, as it developed, because of this tax bill situation.

I would like to have the captain have a good hearing before the committee, and I think it would be desirable for him to be present, if possible, when the general statements of the representatives of the departments are made, and to answer questions. I am not equipped personally to answer technical questions with regard to the plan of operation.

Chairman SALTONSTALL. Well, the Chair would intend that he would be present.

Senator RUSSELL. Mr. Chairman, I hope that we may have an outline made of these reports that have been submitted, one from the Atomic Energy Commission or any other department, and I assume there will be one from the Interior Department that will come along in due course, and have those furnished to members of the committee so they can read them prior to this hearing because this is such a novel proposition that those of us who deal ordinarily with matters relating to the armed services are not as well informed as we are on an ordinary operation, and I should like to have a copy of whatever is submitted by any department, furnished me so I can read it in my office before this hearing so I will know how to participate as intelligently as possible in that area.

Chairman SALTONSTALL. The Chair is confident that is good intelligence.

Senator RUSSELL. Thank you, Mr. Chairman.

Chairman SALTONSTALL. That is just what the Chair had in mind for all of us, and if that is agreeable to you, Captain, and, as Senator Russell has so well expressed, this is a rather novel subject to many of us, and from what the Chair has heard, he says with a smile it is kind of cold down there, and we want to know how we are going to be equipped to meet it and what the purpose is, and so forth and so on, and so we will put your statement in the record; we will put into the record the other statements that you have and that we have, and we will make that record complete as soon as possible, and as soon as it is complete, we will give each member a copy to read, and we will send a copy to you, through Senator Case, and we will have a meeting; we will try to make it within 2 weeks.

Captain RONNE. Mr. Chairman, may I make just a brief statement? The various departments have now received copies of this outline of operational plan. Unfortunately the Commerce Department did not have any knowledge of the scope of the expedition when they made their comments. However, they now have a copy of the

plan, and I have been told that they will forward a new comment on the operational plan.

Furthermore, I would like to say that the Antarctic is a vast continent, larger than the United States and Mexico combined. The white areas indicate the areas still unknown, and the potentialities in an area of that size are tremendous with regard to fuels and minerals and things that would be of value for this Nation in the future. So, I, therefore, strongly urge that we, the United States, go down there on the plan, as submitted by me, and really explore the area there.

Furthermore, I would like to say a few words, with regard to the aggressive or the opposing way of life in this world, namely, the Soviet Union. If the Soviet Union should go down there and start to explore and map the still unknown area into the area where I have set up some temporary bases with red lines connecting the flight lines, and start to map and explore that area, we, the United States, will be in a bad position with regard to claiming land there, as one of the first requisites for claiming land would be to explore it and have adequate maps made of the area, so that is one of the main bases for this expedition, in addition to investigating all the outcrops we know are there for future minerals, for the future welfare of this Nation. Thank you.

(The prepared statement of Captain Ronne together with the supplementary statement follow:)

I appear before you in support of S. 3381 in my capacity as chairman of the board of the American Antarctic Association, a scientific nonprofit organization. S. 3381 would authorize the President to assist the American Antarctic Association to conduct an expedition to the Antarctic on behalf of the United States.

I believe that the Congress should authorize this expedition. It would produce great returns in many fields—political, economic, military, and scientific. Politically it is important that expeditions under the auspices of American nationals continue to make explorations into areas never yet seen by man in order to bolster the legitimate claims of the United States in accordance with international law. Obviously the State Department is in a much better position to give you an opinion on this most important phase of any expedition. Mr. Brown of the Department of State will describe the position of the United States. However, I do want you to note that Great Britain, Australia, France, Norway, Chile, and Argentina are occupying bases and conducting research; but that since 1948 no American expedition has been to the Antarctic. The 1948 expedition, under the auspices of the American Geographical Society, was made possible by an act of Congress authorizing the Secretary of the Navy to lend a vessel for use by the expedition.

Economically the potentialities of the Antarctic should not be overlooked and geological exploration would be an important part of the proposed expedition's work. Geologists have located a large copper deposit containing ore of a higher grade than that presently being mined at Bingham Canyon, Utah, where one-third of all the copper mined in the United States is produced. Obviously the time will come when such deposit will be most useful to this Nation, and I believe you will agree that we ought to look forward to being in the best possible position to assert claims in this area. In addition to copper, coal has already been discovered.

The military value of such an expedition is probably already well known to you because of the many Government and private expeditions in this area. Under the bill, members of the military services would become members of the expedition and would gain much experience in this unusual type of operation which might be extremely valuable in the event of a war. The expedition will put equipment of all sorts to the severest, practical type of tests in cold weather operation. Meteorological observations will be made constantly throughout the duration of the expedition and will be of great value to weather forecasting. In addition, the aerial photographs and maps made thereform will be of definite value.

We cannot here today go into the details of the proposed operations which will cover a period of 2 years. The operational plan, copies of which have been furnished you gives a general outline of the operations. However, if I may, I

should like to outline the nature of the work of the expedition. First, to give you an idea of the size of the area of the Antarctic. There are 5,100,000 square miles—two-thirds of it is marked as unknown. This is about equal to the area of the United States.

The expedition will arrive in the Antarctic during January 1955 and will establish its main base at Gould Bay. Upon completion of unloading, the ships will leave the expedition and return to their normal military duties.

The 36 men comprising the expedition will then proceed with the establishment of the main base and bases in the field where meteorological studies will be carried out during the winter night. The field bases will provide up to the minute weather information so that flights will be undertaken only when the conditions are advisable. This makes for a greater saving in operations effort and supplies. The advance bases will also serve for ground contact points by smaller planes by obtaining ground control points into the unknown.

The most important aspect of the expedition will be its mapping program. This will be correlated with the Geological Survey of the Department of the Interior and the Aeronautical Chart Service of the Air Force. Geodetic control points will be established to facilitate the utilization of 74,000 aerial photographs taken during the course of the Navy Antarctic developing project of 1946–47 for map making purposes.

The expedition will remain in the Antarctic into February 1957 under the present plan. However, since the evacuation of the base is dependent on the ships getting through the pack-ice, supplies will be taken for an additional year in the event that the expedition cannot be evacuated in 1957. The work of the expedition will then continue for the additional year.

I believe that section 1 of S. 3381 gives a succinct statement of the purpose of the expedition. In addition, you will note that the bill provides the authority for the use of equipment for the type of expedition which I have described. Before I conclude I should like to state that I served as the leader of the American expedition to the Antarctic in 1946 to 1948 sponsored by the American Antarctic Association and under the auspices of the American Geographical Society. I would also be the leader of this proposed expedition. I say this to you so that my personal position will be clear. However, I strongly believe that Congress should support this expedition for these reasons: First, that it will be in the best interests of the United States politically in its role as a major nation of the world. Second, that it will mean much to the economic future of the United States due to the potentialities in minerals and fuels and we should utilize every opportunity to pursue such exploration. Third, from a military and scientific point of view offers many chances for increasing our knowledge and abilities.

Gentlemen, this is the end of my prepared statement. The operational plan furnished for your study are detailed in the various phases of the expedition. I am more than willing to answer any questions and go into any details which you may wish to inquire about. I am also available to consult with the staff of the committee at any time if you wish.

WHY WE SHOULD TAKE AN ACTIVE STAND IN THE ANTARCTIC

1. It is known that communistic aggression is a continuous process which, if not stopped will encompass the entire world. Nothing will prevent the Kremlin hierarchy from using all means to attain their goal. Up to now, communistic domination has not had a secure foothold in the Western Hemisphere, although an inroad has been made by the developments in Guatemala which is an obvious sign of their intent to expand Communist influence in the Western World.

2. The extension of the Western Hemisphere stretches into the Antarctic Continent which is separated from South America by the Drake Passage. Control of this strait would be of utmost importance to the United States should the Panama Canal be made inoperative during a war. That the Soviets have an eye on the Antarctic Continent is evidenced by their annual activities in whaling and reported scientific studies. It is not known if any bases have been established on the continent by the Russians, although their interests have been expressed constantly in their desire to be in on any conferences with regard to the sovereignty of Antarctica.

3. Senate bill S. 3381 proposes to validate United States claims in the Antarctic by exploring and mapping the more than 3 million square miles of land still unknown This area, larger than the United States will undoubtedly yield evidence of potentially valuable minerals and fuels for the necessary future reserves of this Nation. The Department of State already has acted favorably on S. 3381,

taking the position that the added value to the United States by original exploration will thus create a more valid basis for our claims. This attitude represents a welcomed reversal of the United States policy of the "no American claims to the Antarctic" which has been maintained for over 100 years. It is understood that the Department of State has now made an outline of American claims to the continent and that they will be exerted shortly. The proposed expedition would be in an excellent position to validate and extend these claims almost immediately and this action would be taken in a very important sector of the continent.

4. It should be noted that nothing would prevent the Soviets from extending their interests to the Antarctic Continent where they would be able to explore, make maps of the area, establish settlements (as have the British, Argentines, Chileans, French, and the Australians) and to the fullest extent make claims to the land, just as legally as the United States. Should this occur, the position of the United States would be another "too late" and "not enough". It would mean perhaps spending billions of dollars later to stop the menace that now would require the expenditure of a few thousand dollars only. Can we afford to relinquish the Antarctic Continent and its future potentialities by default?

5. Since the above subject is of great national interest, I urgently plead that all efforts be made to support Senate bill S. 3381 through the executive channels.

(The document entitled "Outline of Operational Plan" follows:)

OUTLINE OF OPERATIONAL PLAN FOR THE AMERICAN ANTARCTIC ASSOCIATION, INC., EXPEDITION, 1954–57

GENERAL SCIENTIFIC GUIDELINES AND OBJECTIVES

This expedition will make scientific and geographic investigations in the Antarctic in accord with major policy guidance of the Department of State for United States Antarctic efforts. The State Department requested the National Academy of Sciences to consider and report on the best scientific approach to the problems of the Antarctic. The report [1] was prepared by a committee under the leadership of the late Dr. Isaiah Bowman, then president of Johns Hopkins University. The four basic concepts underlying the scientific objectives of that plan may be summarized as follows:

1. Every square mile of unexplored territory must be assumed to have potential value at sometime in the future, if not now.

2. Further field discoveries and interpretations and the exploitation of possible valuable assets will be aided by the production of a general map of the Antarctic Continent on a uniform scale.

3. For the first time in history the mapping of polar territory is technically feasible at reasonable cost and within a reasonable time. Territory at present unexplored will quickly disclose its main outlines as photogrammetric work proceeds in the field.

4. Results thus obtained will greatly enhance the scientific planning during the 1957–58 international geophysical year.

5. A continentwide scientific program in Antarctica cannot be fully developed until we have at least a reconnaissance map embracing the entire area. It is necessary to know what are the areas of ice-free rocks, what are the approximate elevations of all parts of the continent, and where the ice surface will permit operations by different types of surface and air transport.

The specific objectives of the various phases of the expedition, meteorological, geological and aerial photography are explained below.

I. ORGANIZATION

The expedition is being organized by the American Antarctic Association. The leader in the field will be the chairman of the board, Com. Finn Ronne. He is a Reserve officer in the Navy and may request to be placed on active duty for this expedition.

The development of the detailed plan of operations, the advance planning that will later mean success or failure in the field, and the supervision of the procurement of men and material is the responsibility of the Antarctic Association. The experience of the association, the practical know-how in selecting the right equipment and the right people to be subjected to the rigors that will be faced by this expedition is perhaps the most valuable asset available as the expedition prepares itself for the field.

[1] Antarctic Research—Elements of a Coordinated Program National Academy of Sciences, May 2, 1949.

II. OPERATIONS IN THE FIELD

The personnel, equipment and supplies

The three Military Establishments will be called on to supply the modest requirements for personnel, equipment and supplies. A major role of all three will be that important function of getting both the expedition and the field parties to the places where they can perform their duties and bringing them back. In addition they will carry out the aerial photographic program. The role of the services is vital, there can be no expedition without their support. The Commerce Department and the Interior Department will be asked to provide the meteorologists and geologists whose studies are basic for this scientific expedition. Without their services, the character of the expedition would be entirely different. Without meteorologists, the aerial photogrammetric program would be hazardous and wasteful of time and supplies. Without geologists, the mineral and fuel potentialities of the area would not be checked and important deposits might be passed over.

A. The Navy to provide sea transportation as follows:

One modern icebreaker (AGB) and a cargo ship (N3–MO–A1). The icebreaker should be manned and operated under full control of the Navy, have two helicopters on deck for ice reconnaissance work and perform the specific duty of assisting the cargo ship through the pack-ice and her return to the open sea after unloading. The cargo ship, similarly should be under the control of the Military Sea Transport Service, and directed to transport the expedition, equipment and personnel to the Antarctic, and to unload cargo at a location and at a specific time as designated by the expedition leader.

The icebreaker would be needed for a period of approximately 4 months, from December 20, 1954 to April 20, 1955, and the cargo ship from December 1, 1954 to May 1, 1955. The vessels would be needed the same periods during the 1956–57 season in order to evacuate personnel and equipment.

Should commitment elsewhere be such that the Navy could not spare an icebreaker during the period specified above, the following alternative would be satisfactory, namely: in lieu of the cargo ship, (N3–MO–A1), the assignment of a larger and heavier AK or AKA can be used for the purpose of establishing the Antarctic base. Such a vessel with heavier hull-plating is able to withstand pressure and make passage through the Antarctic pack-ice.

It should be noted that the Northern Hemisphere's winter season would be used by these vessels to transport the expedition to the Antarctic. Upon completion of this mission, they would be free to return to the United States for any regularly assigned duty in the Northern Hemisphere summer. In addition to carrying out the expedition's requirements, this program would offer the icebreaker and the cargo ship the opportunity to utilize the normally slack winter period in the Northern Hemisphere to gain valuable experience for both personnel and equipment under ice-conditions unobtainable elsewhere. At the same time, oceanographic studies could be undertaken in completely unknown seas, believed to be the most important area in the Antarctic from which there are not any existing records. On two flights, almost a month apart, open water was found in the southern portion of the Weddell Sea during November and December 1947.

In order to assist in the process of obtaining ground control points in areas covered by the Navy during the 1946–47 season, it would be well for the Department of the Navy to consider more fully the utilization of the icebreaker when in Antarctic waters. This can best be done by circumsailing the continent at the end of the unloading period in Gould Bay. Sailing eastward, helicopters would be able to land parties along the coastal escarpments to establish ground control points based on the available coverage of aerial photographs. It would enhance the value of the data now available for compiling a first topographic survey map of areas covered by American nationals as outlined earlier in this report.

B. The Army to provide surface transportation, housing, messing, feeding, heating, clothing requirements as follows:

1. *Corps of Engineers:* (*a*) Provide base buildings for 36 men, in addition to buildings for machine shops, science building, supply shacks, etc. This should consist of 6 Arctic shelters 16 by 32 feet, including heating units, galley, messing and bunking facilities. Also 4 Jamesway huts of moderate size for use at advanced bases, and for use as meteorological buildings at the main base.

(*b*) Generating plants, with spare parts, plus gasoline or diesel fuel for their continuous operation over a period of 2 years.

(*c*) Four weasels with spare parts, plus 4,000 gallons of gasoline in light containers.

(*d*) Survey instruments for use by ground survey parties for tie-in with aerial mapping and required personnel.

(*e*) Machine shop, carpenter shop, and equipment as required, in addition to coal and stoves for heating purposes.

2. Quartermaster Corps items for 36 men as listed below:

(*a*) Clothing for Arctic environment.

(*b*) Bunking and messing, galley equipment, recreational equipment, library, film.

(*c*) Camping and traveling gear, such as sleeping bags, tents, stoves, trail rations for test, etc., and other items needed at the wintering base and outlying stations.

3. The Signal Corps should furnish all communication equipment such as:

(*a*) Two 1KW radio transmitters and receivers, with spare parts for a period of 2 years for use at the main base.

(*b*) Six trail radio sets (transmitter and receiver) for use at the outlying stations.

(*c*) Photographic equipment for still and motion-picture coverage of the project's activities, including film.

C. The Air Force to provide airplanes, personnel, gasoline, trimetrogon photographic equipment and perform all air activities from the wintering base. The airplane requirements are 1 C–47, 2 Otters, and one L–19–A in addition to repair huts and associated equipment required to carry out the functions of the Air Force. All airplanes to be furnished with skis, plus spare parts. Also trimetrogon film, development kits, emergency and traveling gear for aviation department use. More detailed requirements are under preparation at this time.

D. The Commerce Department's Weather Bureau to furnish the necessary equipment to perform all meteorological observations as outlined in paragraph 5. Two experienced meteorologists and two field assistants should also be provided by the Weather Bureau.

E. The Interior Department, the Geological Survey should supply a geologist and two assistant geologists with the necessary instrumentation for a thorough investigation of the rock formations in the area to be covered in the field as outlined in paragraph 4. The Geological Survey will also be able to assist in the formulation of the best methods to be used in aerial photography to obtain maximum coverage for efforts expended, as outlined in paragraph 3.

F. Personnel: Because plans are merely in the formative stages, the positions listed below are tentative. Assuming that the Navy will utilize an icebreaker and a cargo ship for transporting the expedition to the Antarctic, only the wintering personnel, including the flying crews, scientific personnel, and field and base-keeping personnel need to be provided. The geological, meteorological, and survey work will be performed by the civilian members of the expedition—some 9 civilians will volunteer for this 2- and possibly 3-year job.

As is stated in the House and Senate bills (H. R. 9854 and S. 3381) military personnel will be made available on a volunteer basis, and they should, therefore, be utilized to the fullest extent. Several qualified men might be recalled to active duty, as their services could be considered part of their training to improve their qualifications for cold-weather operations. Personnel will be needed as follows:

Number and position	Where procured	Status
1. Expedition leader		
2. Executive officer	Navy	Military.
3. Clerical	do	Do.
4. Chief scientist (Geologist)	Civilian	Civilian.
5. Assistant geologist	Interior	Do.
6. Assistant geologist	do	Do.
7. Meteorologist	Weather Bureau	Do.
8. Assistant meteorologist	do	Do.
9. Assistant meteorologist	do	Do.
10. Chief Pilot	Air Force	Military.
11. Pilot-mechanic	do	Do.
12. Pilot-mechanic	do	Do.
13. Air mechanic	do	Do.
14. Aerial photographer	do	Do.
15. Assistant air photographer	do	Do.
16. Radio operator	Navy	Do.
17. Assistant radio operator	do	Do.
18. Assistant radio operator	do	Do.
19. Doctor (medic)	do	Do.
20. Hospital man	do	Do.
21. Steward	do	Do.
22. Cook	do	Do.
23. Assistant cook	do	Do.
24. Surveyor	Army	Civilian.
25. Surveyor	do	Do.
26. Surveyor	do	Do.
27. Photographer	Air Force	Military.
28. Machinist	do	Do.
29. Carpenter	Army	Do.
30. Tailor	do	Do.
31. Navigator	Air Force	Do.
32. Navigator	do	Do.
33. Weasel driver	Army	Do.
34. Weasel driver	do	Do.
35. Open		
36. Open		

G. Food requirements: The expedition should be supplied with food for 36 men over a period of 36 months from the date of their landing on the continent. Although the wintering party intends to stay for 24 months without resupply, the extra year's supply of food would be necessary for survival another year should the ship be unable, for any reason, to penetrate the Weddell Sea pack ice. A good wholesome diet should be provided, commensurate with the food furnished Air Force bases in the Arctic. In addition, special trail food needs to be provided for use by the men who will man the outlying bases. These bases will be manned by field personnel whose existence will depend exclusively on special field rations for food. Geological and survey parties will also live on the same type of food, which will also be the emergency rations for the airplane crews on all long-distance flights.

III. GEOGRAPHICAL OBJECTIVES

The United States Geological Survey has outlined a mapping program especially planned for this expedition as follows:

A. To determine the coastline extension which forms the eastern shore of the Weddell Sea and its connection, if any, with the Lassiter Shelf Ice to the west.

B. To determine the direction and extent of the Palmer Peninsula mountain range which has been proved to be a continuation of the Andes Mountains in South America. These mountains were found during the Ronne expedition 1947 to die out in a high plateau at approximate latitude of 77° south. A problem still to be solved would be to find out what connection these high elevations have with the Queen Maud Mountains farther south and west.

C. To determine the direction and extent of the Leopold Land Mountains and what connection they have with the higher plateau and mountains surrounding the South Pole itself.

D. To carry out extensive mapping operations both from surface and air, over the Edith Ronne Land area and southward in the direction of the Pole.

E. To cover in trimetrogon photography as much as feasible of the still 4 million square miles of unexplored land, operating from the wintering base in Gould Bay on the Lassiter Shelf Ice. Surface parties will be deposited inland at st ategic locations to obtain ground-control points to tie in the aerial photographs. The flight routes will follow the prepared plan.

The principal objective should be the obtaining of a maximum amount of map information. In order to do this and to coordinate any new information that is

obtained with that already known, the following steps will be taken: (1) All new photography will be connected with the photography already obtained on the earlier expedition on and in the vicinity of Palmer Peninsula; (2) between now and the time the expedition leaves, such map information as possible will be compiled from the earlier aerial photography; (3) enough flexibility of operation will be included in the expedition to permit as much photography as may be needed on the Palmer Peninsula to yield comparable map information throughout the area covered, for 1:500,000 scale mapping; (4) photography of new areas will start from and include the coastline and flights made progressively farther inland in general paralleling the coastline until they are so far inland that they should be controlled by any dominant features that might be present such as mountain ranges.

The comments under the following headings discuss briefly certain aspects of an integrated photographic and mapping program that may be useful in the planning.

F. Aerial photography. Photographic flights should be at 20,000 feet with the flight lines from 25 to 35 miles apart depending on terrain relief and visibility. It is planned to use C–47 aircraft for the photography. Such aircraft will be able to photograph from the desirable altitude. It would seem that longer-range, higher altitude aircraft might effect important economy in photographic flights.

The expedition will be equipped with a photographic laboratory for developing and printing the results of each mission. It will also have simple photogrammetric equipment such as sketchmasters, stereoscopes, grids, etc., for evaluating the photography, estimating coverage, and providing information for further expansion.

G. Horitzontal control. The minimum amount of control consistent with good compilation practice is in having horizontal control points spaced approximately 100 miles apart. Astronomic stations at this density will suffice for the compilation although more frequent stations are more desirable.

The use of shoran as a means of establishing control will be explored because a fairly accurate location of each nadir point position at the time of camera exposure is obtainable. The limitation of shoran is in range because the wave path consists of almost straight lines so that range is limited by earth curvature. For long-distance exploratory missions, multiple shoran stations will have to be set up, and this apparently would exceed the limitations of space and personnel.

In addition to astronomic control, airborne field parties can be used to supplement and tie into the astronomic stations with triangulation nets and terrestrial photography taken with a photo-theodolite.

In the absence of shoran for horizontal control, radar photography can be used in conjunction with the Trimetrogen photography to extend horizontal control between astronomic stations as well as further inland. During breaks in visibility and continuous aerial photography, radar photographs can provide continuity of shoreline and other large geographical features and also provide a flight plan for subsequent photographic flying.

H. Vertical control: Vertical control should consist of points of known elevation spaced from 25 to 50 miles apart, depending on the visibility of the oblique photography. As a partial requirement for this purpose it is recommended that one of the flights be flown looking into the fjords, coastline indentations, and shelf ice so that the vertical control provided by nature in the form of coastline elevations and estimated heights of shelf ice can be utilized. It has been effectively demonstrated that flights which show shoreline in the foreground of the oblique photographs are of great value for establishing elevations inland. In otherwise uncontrolled areas, heights may be established from 50 to 100 miles inland, depending on the clarity of the photographs, from the datum provided by shoreline alone. Additional vertical control from vertical angle triangulation, reconnaissance surveys on the ground, terrestrial photography, barometric elevation indicators are some of the more conventional and proven means for establishing vertical control.

One of the best opportunities for obtaining vertical control for the inland areas is in the use of airborne radar altimetry, synchronized with the trimetrogon photography to provide identification as well as elevation data. Radar altimetry should be the modern narrow-beam type having 2 ° or less beam width. It is important that the radar altimeter record be in continuous graphic form such as obtainable with the Esterline-Angus recorder while the aircraft is maintained at constant height above sea level. Radar altimeter readings give difference of elevation above ground and are correlated to the altimeter height to obtain the terrain height. A continuous profile of the ground is more valuable than spot elevations alone, since it gathers more elevation data and can be interpreted more readily.

IV. GEOLOGICAL OBJECTIVES

The source for the following geological objectives in the Antarctic are the results of studies outlined in Antarctic Elements of a Coordinated Program. National Academy of Science, May 2, 1949.

There are certain fundamental questions respecting Antarctic geology upon which field and laboratory work should be concentrated:

A. In how far are the structures of the nearest continents—Africa, South America, and Australia repeated in Antarctica?

B. In what order and at what times did the major coastal deformations take place?

C. What are the gaps as well as the major deployments of sea and land life in geological time?

D. Specifically, was the Antarctic a migration route for biological forms from one continent to another? To what extent was it a center of origin for forms that were then dispersed northward?

E. What explanation can be found for the apparent fact that no part of the geological column (Cambrian to Tertiary) discovered so far, reveals past glaciations, while such past glaciations are known in the three adjacent continents in areas close to or in the present subtropical zones?

F. In connection with the absence of past glaciatins, what explains the presence of Permian ferns, Triassic trees, coals of different ages, and fossil leaves, the last named within 300 miles of the South Pole? In Palmer Land, cretaceous fossils have been found of types that imply "the existence of a mild climate with comparatively warm ocean currents at this period." Will changes in coastal outlines and the deflection to Antarctica of relatively warmer ocean currents originating in low latitudes explain both the absence of past glaciations and the presence in the past of mild-climate forms of life. If so, the restraining lands continental outlines seem to have been long-sustained and to have been ruptured in relatively recent geological times. Is the Antarctic ice-cap a late development? If its present retreat is long continued, will the process accelerate as ice-free land (of which there is a very limited amount at present as discovered by Lars Christensen in 1937) becomes more extensive? A rise in sea level would result and, if continued, will affect port installations the world over. If all Antarctic ice were melted, the rise in sea level would be of the order of 50 to 60 feet. No one expects such an extreme effect fefore reversal of the trend takes place. The serious question remains: to what degree may such changes be progressive? A knowledge of the ice, its mode of formatoin, its rate of movement, its growth or diminution, its mechanics of movement—all bear on these large questions, continental and even worldwide scope, and of intense interest to science.

The search for rock exposures should be intensified as the aerial photography proceeds. Rock structures should be examined at all available outcrops to determine the geological and especially the sedimentary record. Collections of fossils are priceless in the interpretation of sedementary history and also in the eventual determination of Antarctic connections with adjacent land masses either now visible or possibly submerged. Studies of grass rock structures, including the use of radioactivity detectors (Geiger counters), can be made in the field; but prolonged further study is also required in the laboratory to determine the mineral composition and qualities and to reveal the finer structures that call for the application of modern petrofabric and other techniques.

The geology of the area where the expedition will winter and the area southward, eastward and westward is practically unknown. Exploration of the unknown sector south of the Weddell Sea would solve the geological problem of whether the Antarctandes of Palmer Land stretches across the continent to South Victoria Land. The apparent occurrence of fault blocks upon the floor of the Weddel Sea, the finding of Archaeocyathidae limestones as erratics in the seas of Kemp and Enderby Lands all suggest that the major portion of the continent is one tectonic unit forming a great shield against which the Antarctandes of Palmer Land are folded as a continuation of the long South American and subantarctic ridges. Investigation of the area south of Alexander Island would do much to clear up this present obscurity.

From the paleontological aspect there are few regions of the Antarctic continent likely to repay detailed investigations to the same extent as certain areas of West-Antarctica and the area from the Weddell Sea toward the South Pole. It will be possible for the expedition's geologists to spend a considerable period in the field. With aircraft parties will be deposited at rock outcrops for collections of rock samples and studies.

V. METEOROLOGICAL OBJECTIVES

The meteorological phase of the program is of paramount importance to the aerial photographic flight program. By knowing the climatic conditions over a wide area before taking off on a flight, gasoline, time and effort can be saved. It is a known fact that weather observations in Antarctica afford a basis for understanding the atmospheric structure and the global influence of one of the two most significant areas of the earth. The importance of the determination of long-range climatic changes on the earth can scarcely be overestimated. In the general warming up of the earth, large quantities of ice and snow in the polar regions would melt, raising the level of the oceans. In addition to inundating presen. low altitude coastal areas and seaports, this result could also allow Hudson Bay, the Arctic Ocean, etc. to become year-round navigable areas. Present icebound ports in both the subarctic and the antarctic could become ice-free ports with continued temperature rise of the earth of only a few degrees. Events of this type are of great political and economic influence, and the desirability of determining their timing and occurrence is obvious.

The meteorological recommendations and specifications of requirements for meteorological observations in the Antarctic in the following pages have been formulated as a result of practical meteorologista work on former expeditions to the continent. They were designed especially for the proposed expedition by Mr. Arnold Court, meteorologist, United States Antarctic Service, based on the fact that meteorological stations will be established in the interior of the Antarctic. Previous expeditions, without exceptions, have all been located along the coastal fringes, and no continuous readings of any kind have been made in the interior of the continent during the winter half of the year, when weather conditions are too severe to travel, or live in improvised shelters away from the Main Base.

Antarctic expeditions in far too many cases have been handicapped by: (1) Insufficient time for preparation, and (2) lack of experience or background on the part of otherwise able and enthusiastic scientific personnel. Consequently most expedition meteorological programs have not made the most of the exceptional opportunities, and their final results have been far less complete than could have been insured with adequate advance planning.

Instruments in particular have all too often been gathered up almost at the last minute from standard stocks, with no time to design or obtain special equipment suited for the extreme conditions, or even to modify the standard equipment. As meteorology advances, its instruments become more and more complex, and proper advance planning becomes of increasing importance.

For the proposed expedition, special equipment has been specified in almost all cases—even to thermometers of thallium alloy whose freezing point of −60° F. makes them far superior to mercury thermometers. All these special instruments are currently under development, by or for the Signal Corps, and can be available if ordered at least 6 months in advance, with sufficient priority.

Only one new development, or rather adaptation, is contemplated: the modification of a radiosonde intended for parachute descent from aircraft so that instead it may be used with balloons, requiring no ground equipment other than a standard high-frequency receiver. Only by such a development can radiosonde observations be obtained at a remote outpost where every ounce to be shipped in is important, and cramped quarters require that operating equipment be kept to a minimum. While not currently contemplated, this proposed development seems eminently feasible and may have extensive military applications, permitting occasional radiosonde observations from behind enemy lines, from submarines, or at isolated outposts.

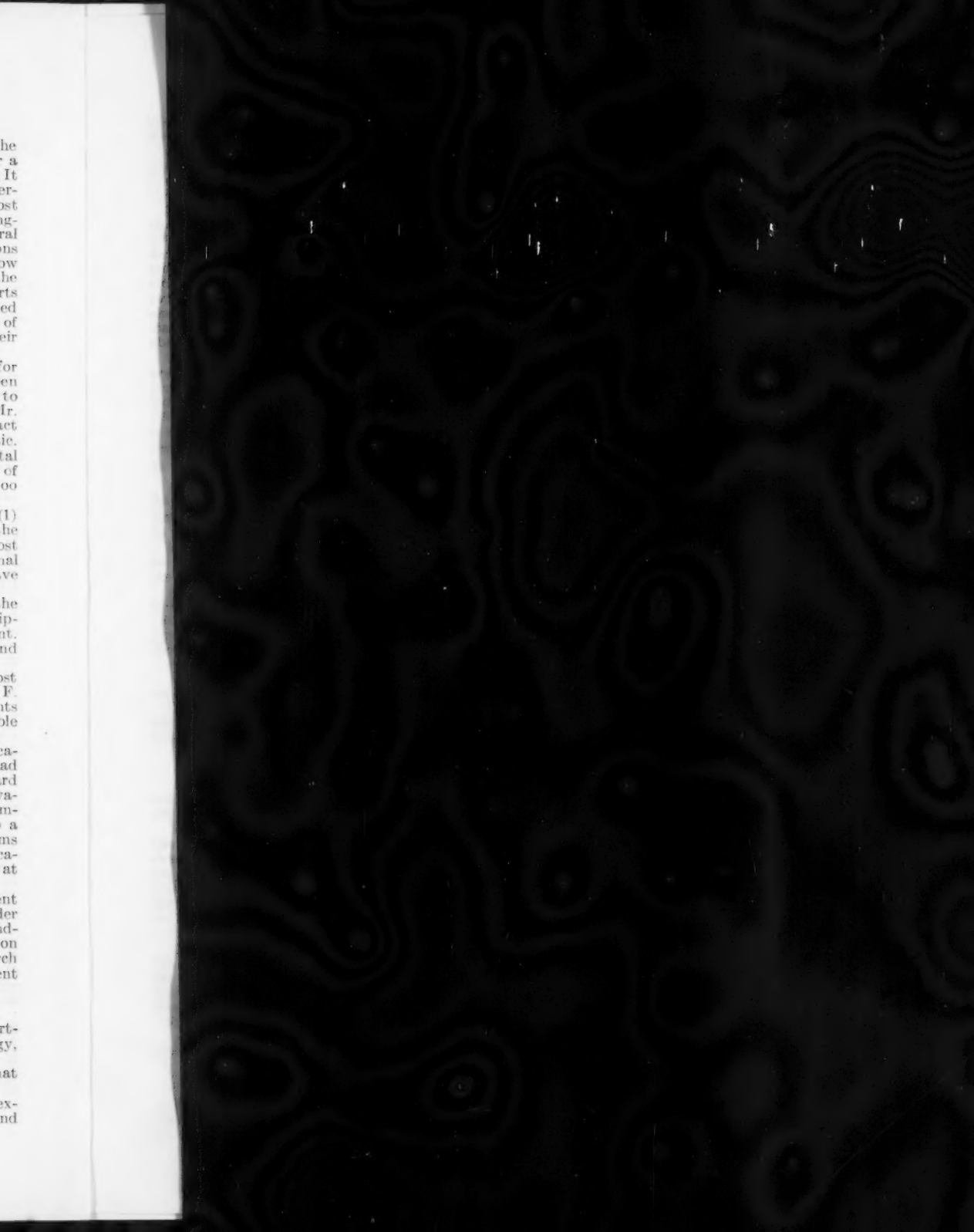
The following recommendations for observations, outlining the basic instrument and equipment requirements, are intended to supply the best possible results under the assumed circumstances with a minimum of operational difficulty. Only standard observations are listed, since special research observations depend largely on the training and interest of the meteorologists concerned, whether such research be on vertical gradients of temperature and wind near the surface, measurement of radiation balance, character of snow crystals, or the composition of the air.

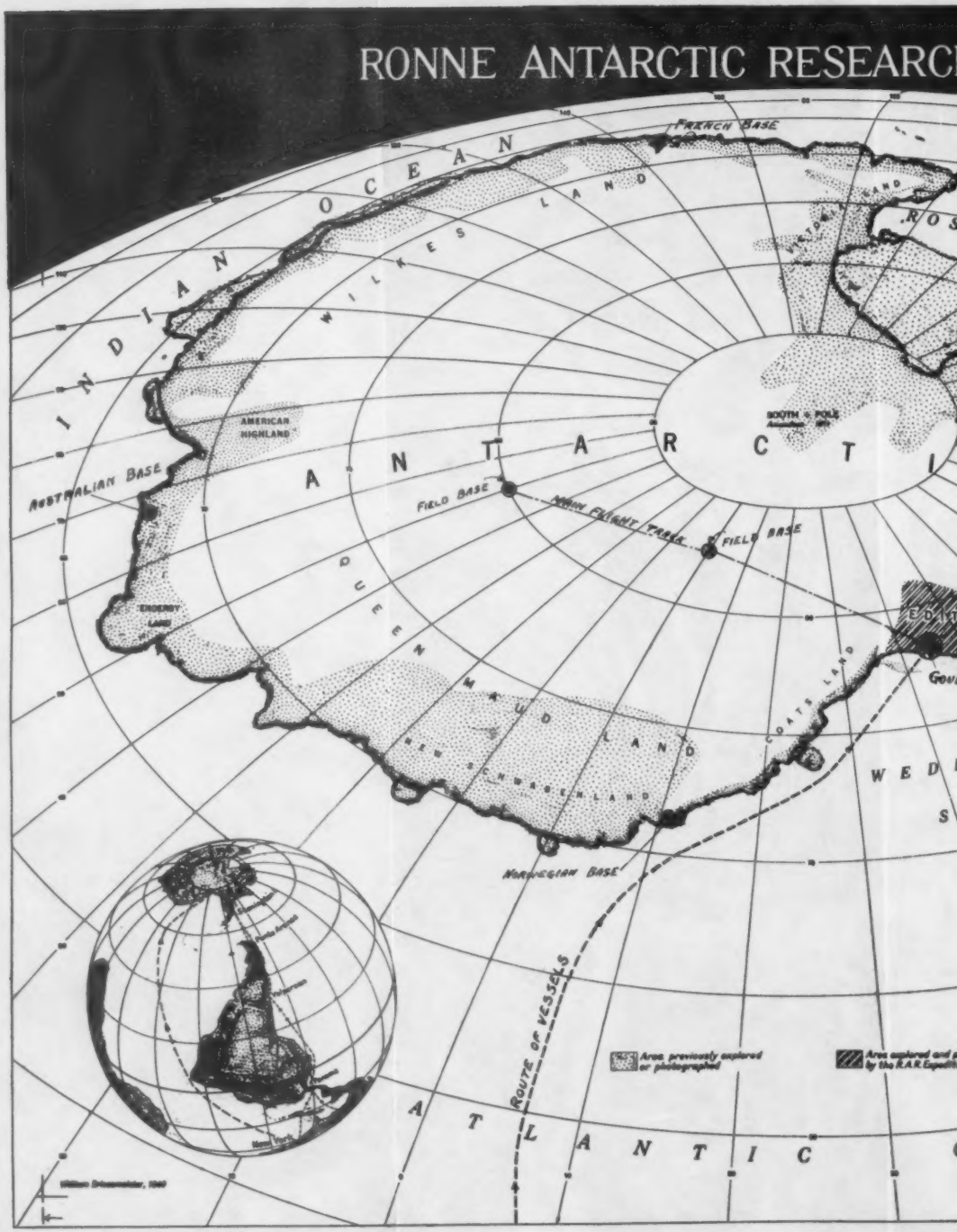
A. Base station

1. *Personnel.*—Minimum of two meteorologists, who may be committed to part-time assistance in some other phases of geophysical program, such as glaciology, magnetism, seismology, or cosmic ray work.

2. *Location.*—On coast of continent (or on shelf-ice) accessible by ship so that heavy equipment poses no great problem.

3. *Observations.*—Complete synoptic observations every 6 hours, to be exchanged by radio with other bases in area (British, Norwegian, Australian) and





50231—54 (Facing p. 15)

RESEARCH EXPEDITION
ROSS SEA
FRAMHEIM (Little America)
MARIE BYRD LAND
SOUTH POLE
FIELD BASE
EDITH ROUSE LAND
GOULD BAY
COATS LAND
WEDDELL SEA
AMUNDSEN SEA
BELLINGSHAUSEN SEA
DRAKE PASSAGE
SOUTH AMERICA
Area explored and photographed by the R.A.R. Expedition 1947-1948

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eventually transmitted worldwide. Daily rawinsonde ascents, supplemented by pilot balloons during flying operations.

4. *Records.*—Continuous automatic records of pressure, temperature, humidity, wind direction and speed. Daily records of snow accretion using special sticks. Routine records of visual observations of clouds, visibility, and hydrometeors. Ceiling heights from improvised lights.

5. *Instruments.*—Standard thermometer shelter; standard hand psychrometers, also thallium "current" thermometers; standard maximum and minimum thermometers, also thallium types; special low-temperature thermograph (Freiz); developmental remote-recording hygrothermograph, AN/TMQ–8; standard mercurial barometer [2] (3); standard microbarograph (2); standard 3-cup anemometer (2) and 9-light or dial indicator; developmental generator-type cup anemometer and wind vane recorder RD–35/GMQ–1 [2] (clockwork, not synchronous electric, drive); special 10-foot sticks, graduated every centimeter for snow depth; standard theodolite for pilot-baloon observations, also usable in surveying and obtaining astronomical fixes; search light to be used as ceiling light.

6. *Equipment and supplies.*—Standard forms for recording observations (2 years), and for thermographs and barographs; pilot baloon telephone set; hydrogen generators (2) and chemicals for 800 fillings of 350-gram balloons plus 300 30-gram balloons, or adequate bottled hydrogen or helium; balloons—800 350-gram; 200 100-gram (assorted colors); 100 30-gram (assorted colors); 100 10-gram; rawinsondes, AN/AMT–4 (developmental)—400 (400 more to be supplied if expedition remains second year).

B. Outpost stations

1. *Personnel.*—At least 1 scientist responsible for meteorological program along with other geophysical work, preferably 2 such men in proposed 3-man party. Preferably but not necessarily a professional meteorologist, with adequate training in observational techniques and instrument maintenance.

2. *Location.*—In interior of continent, possibly on high plateau, to be supplied by sled or aircraft so that bulk and weight of equipment are not too severely restricted.

3. *Observations.*—Complete synoptic observations every 6 hours to be transmitted by radio to base station for relay. Occasional pilot balloon flights, especially during flying operations. Possibly a few (50?) raobs, using stripped-down pulse-type radiosondes (designed for parachute dropping from aircraft) which require only a standard high-frequency receiver.

4. *Records.*—Same as at base.

5. *Instruments.*—Same as at base, except reduced number (1 barograph), and no radiosonde ground equipment. Barometer should read from 22 to 31 inches.

6. *Equipment and supplies.*—Same as at base, except 1 hydrogen generator and reduced chemicals, 200 100-gram balloons, 100 30-gram balloons. About 50 radiosondes modified as above.

VI. ASSISTANCE TO NATIONAL SCIENCE FOUNDATION

The proposed plan can well fit in with the planning now under preparation with the United States participation in the International Geophysical Year, 1957–58.

The expedition will have ample time to establish field bases as determined by the antarctic committee under the National Science Foundation, should it so be desired. These bases could be manned by Geophysical Year scientists embarking on the ship which will return this expedition personnel and equipment to the United States. The advantages of this procedure will be manifold—in that the laborious task of setting up a main base and field stations with the logistic support will have been accomplished, thus enabling the Geophysical Year scientists to conduct their research shortly after arrival in the Antarctic.

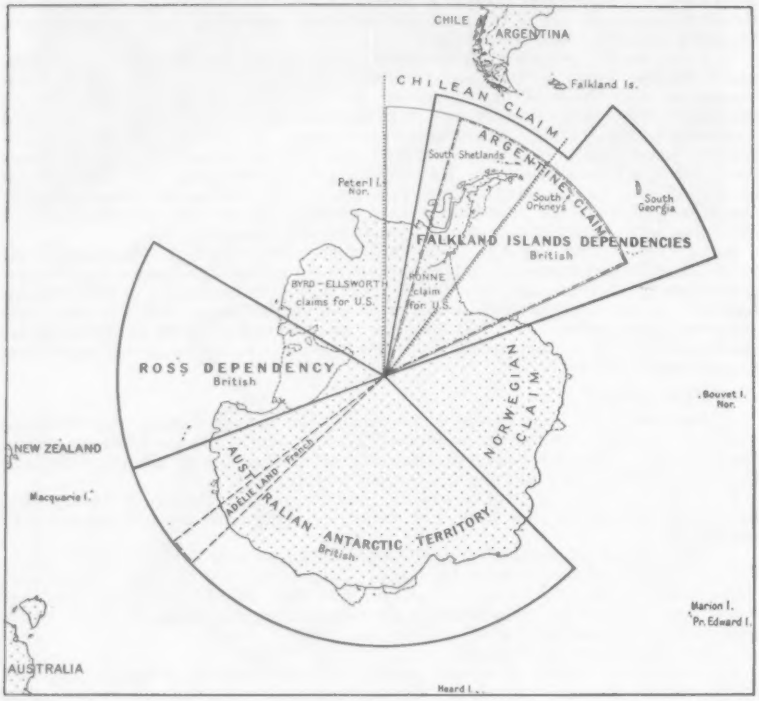
From the expedition's main base located at Gould Bay on the Lassiter Shelf Ice, field stations can be established more readily at the predetermined point of 80° longitude west and 80° latitude south. Further, the Gould Bay Base is no further from the South Pole than would a base in the Bay of Whales area on the Ross Shelf Ice, should the antarctic committee of the International Geophysical Year decide to set up an instrumentation recording station at the South Pole.

FINN RONNE.

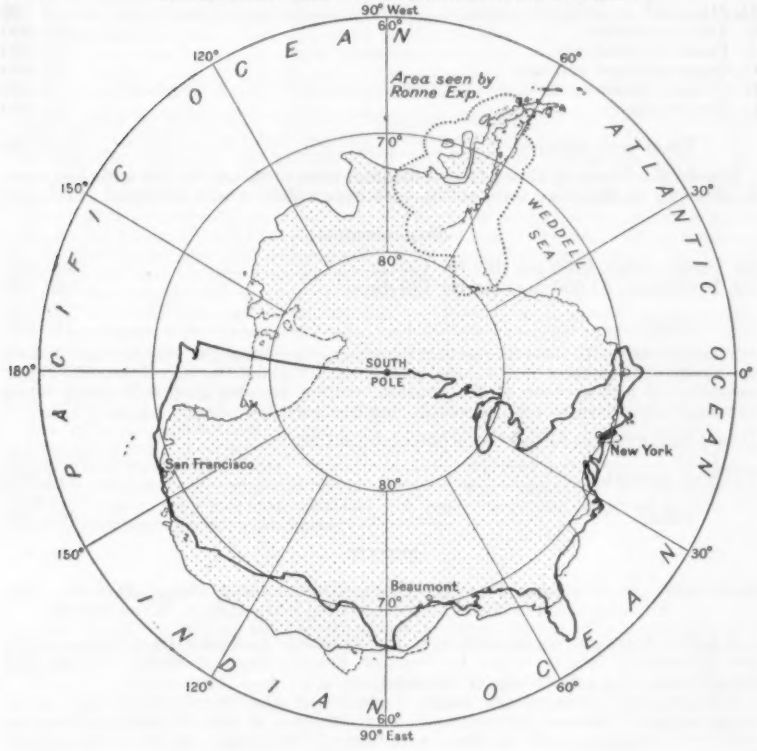
MAY 30, 1954.

[2] Developmental 1,680-megacycle rawinsonde receiver, AN/GMD–1 which has roof-mounted parabolic "dishpan" antenna, automatic tracking, and receiving-recording equipment operated inside building. This equipment must be housed in a building whose roof is free from obstructions in all directions, removed from sources of radio interference, and supplied by a constant and reliable source of 60-cycle, 110-volt alternating current, either from base plant or special generator. This receiver can be used as a very accurate direction-finder for aircraft, if the aircraft can transmit on 1,680 mc.

CLAIMS IN THE ANTARCTIC



ANTARCTICA AND U. S. COMPARATIVE SIZE



Actual expense to the government in cash

A. Base buildings	$50,000
B. Field bases	3,000
C. Fuel and oil	20,500
D. Mapping	4,500
E. Transportation	22,000
F. Food requirements	92,000
G. Organizational expense	16,600
H. Civilian salaries	42,500
I. Contingencies	25,000
Total cash required	276,100

Should the Navy or Coast Guard demand compensation for the added expense involved by sending two ships south, such expenditure would be added as follows:

Ship operation

(*a*) Cargo vessel, $600 per day for 150 days	$90,000
(*b*) Icebreaker, $1,000 per day for 120 days	120,000
Total	210,000

This amount will cover the actual expenses in running the vessels, but it does not include the salaries of the ships' personnel. It should be noted that the ships' personnel, if not used for this operation, will be drawing their full salary while the ships are otherwise idle in port during the northern winter season.

Actual cash expense to the Government would be:

Cash	$276,100
Ship operation	210,000
Total	486,100

STATEMENT OF SENATOR FRANCIS CASE, REPUBLICAN, SOUTH DAKOTA, AND REPRESENTATIVE THOR C. TOLLEFSON, REPUBLICAN, WASHINGTON

A bill to authorize an expedition to the Antarctic to depart December 1, 1954, was introduced jointly today by Senator Francis Case of South Dakota and Congressman Thor Tollefson of Washington.

Senator Case declared the main objectives of the expedition would be (1) Exploration for mineral resources, (2) establishment of ground control points for additional mapping and (3) the validation of territorial claims of the United States.

The bill authorizes President Eisenhower to coordinate essential Government agencies in the loan of equipment and would authorize an appropriation of $200,000.

Under terms of the bill the expedition would be carried out by the American Antarctic Association, a nonprofit, scientific agency which conducted the most recent American Antarctic exploration in 1946–48. It is headed by Commander Finn Ronne who led the 1946 party and who was with Adm. Richard Byrd on his second expedition to the Antarctic in 1933–35.

The expedition will utilize and expand the geographical and scientific findings of previous expeditions, including those of Ellsworth, Byrd, Navy Operation Highjump and the last expedition of Commander Ronne in 1946–48.

Commander Ronne has grown up in polar exploration. His father was closely associated with polar explorer Capt. Roald Amundsen for 20 years being with him when the South Pole was discovered in 1911. After going with Admiral Byrd in 1933–35, Commander Ronne was second-in-command of the East Base of the United States Antarctic Service Expedition 1939–41 and then led the 1946–48 expedition. Since then he has been on duty with the Navy in Washington and was recently selected for promotion to captain.

The directors of the American Antarctic Association are:

Col. Bernt Balchen, USAF.
Lowell Thomas, New York, world traveler.
Sir Hubert Wilkins, world explorer.
Dr. Lawrence McKinley Gould, Carleton College, Minnesota.

Comdr. Georg Unger-Vetlesen, chairman of the board of the Scandinavian Airline System.
Prof. Edward C. Sweeney, Northwestern University, Evanston, Ill., presently on the staff of the Senate Committee on Commerce, himself an explorer.
Dr. Harold M. Dudley, executive secretary, American Council of Commercial Laboratories.

American Antarctic Association Expedition, 1946–48

From 1946 to 1948, the American Antarctic Association, under Comdr. Finn Ronne's leadership conducted the last American expedition to the Antarctic. The scientific program was sponsored by the Office of Naval Research of the Navy Department, which office also published 12 of the scientific reports resulting from their work, the first of their kind to be produced by an American expedition.

The highly successful geographical exploration by airflights was made possible through the Research and Development Branch of the Air Force. Three airplanes and related equipment were made available on a loan basis and two of their competent pilots were assigned to the expedition. A total of 250,000 square miles of heretofore unexplored terrain, plus 450,000 square miles of seen territory was covered for more accurate mapping for the first time in aerial photography. The 3 airplanes were flown 346 hours and 39,000 air-miles were covered, with 86 landings in the field, half of which were unsupported—that is, they were dependent upon their own resources. The flights which were covered in 14,000 aerial pictures with their astronomical control points were turned over to the United States Air Force, as were the three airplanes, all still in flyable condition.

The new land discovered, larger than the State of Texas, the expedition had the privilege and honor to claim in the name of the United States, and the State Department was so informed. A field observer carried out a thorough testing program for the Army, and the resulting report was categorized by them as the best field report they had ever received. A report was also prepared for the Air Force on the use of their equipment.

Excerpts From Statements on Finn Ronne's Work

"The set of reprints on the Ronne antarctic expedition is truly impressive and is indicative of the excellent scientific result of your investigations."—February 19, 1951.

"I wish to extend this word of congratulation to him for the great accomplishments that have come through this work. This is one of the important developments in this area in recent years."—April 14, 1948. Above two statements by Alexander Wetmore, Secretary, Smithsonian Institute (now retired).

"What a magnificent record. * * * You have done a wonderful piece of work and we are all proud of you."—May 5, 1948.

"In a recent meeting of scientists I heard only great praise of the organization and conduct of your recent expedition. It can do no harm to tell you this and of my deep satisfaction over the good name you are building."—September 20, 1948. Above two statements by Isaiah Bowman, president of the Johns Hopkins University (now deceased).

"You are certainly very much to be congratulated on the great successes of your expedition."—September 13, 1948, C. O. D. Iselin, Director, Woods Hole Oceanographic Institution.

"I had a letter from Dr. Iselin, Director of the Woods Hole Oceanographic Institution about another matter but in it he says, 'I have looked over Finn Ronne's report to the Army. I am well impressed by the quality of the report and it is clear that he knows how to run an expedition.' "—September 20, 1948, Isaiah Bowman.

"I was impressed with the tremendous amount of detailed field work you and your expedition were able to do. It was a fine job well done."—September 8, 1948, J. M. Combs, M. C.

"The reports of your expedition which you so kindly sent me arrived today. They look complete, and I am sure will provide interesting reading for me and be of great benefit to the Air Force Research and Development Section."—August 30, 1948, Curtis E. LeMay, lieutenant general, USAF, commanding.

"In the first place I wish to congratulate you most cordially on the highly successful completion of your expedition. Next I wish to thank you for sending

me a copy of the Geographical Review with the very interesting article on the accomplishments of your enterprise. You can indeed look back upon a remarkable success."—October 14, 1948, Harald U. Sverdrup, director, Norsk Polarinstitutt.

"Even this very short report gives a picture of a well organized and still better accomplished expedition. Based upon some 20 years' work in the northern parts I do appreciate the leadership which lead to such great results, and I am very glad to tell you this. I went to sleep last night with the strong impression that I had learned a little about a grand undertaking, and even if you pay a great tribute to your comrades, you cannot possibly hide your own work as the responsible leader and organizer. Your modesty with regard to sensational but not so important feats is obvious, and even if you of course have been operating in the shadow of bigger expeditions, no others have been able to put down results of so high a class with so little selfish ado."—October 29, 1948, John Giaver, leader, joint Norwegian, Swedish British expedition to the Antarctic.

"I have read with great interest the outline of your recent operations in Antarctica as published in the July Geographical Review. You certainly achieved a wonderful advance in knowledge of that region of Antarctica. It is clear that both the organization and the execution of operations were extremely well handled. You certainly have a splendid job to your credit."—December 31, 1948, Sir Douglas Mawson, Australian antarctic explorer.

"I have reviewed with considerable interest the three reports on your antarctic research expedition. The description of snow surface characteristics, of observational techniques, and of the operation of instruments under relatively prolonged and severe polar conditions is particularly noteworthy in view of the small amount of data available on these activities at the present time.—March 24, 1949.—D. N. Yates, brigadier general, USAF, Chief, Air Weather Service.

"I know somewhat of your discouragements and triumphs which finally led to the successful conclusion of a job crowned with valuable scientific data."—July 25, 1949, Ed. H. Smith, rear admiral, United States Coast Guard.

"I want to repeat my praise of your handling of the expedition, particularly in regard to the extent to which you provided the scientists with the opportunity to do their work."—August 12, 1949, Maurice Ewing, Department of Geology, Columbia University.

"It has long been a function of the Geological Survey to put the benefits of its diversified experience and techniques gained through the years at the disposal of other worthwhile groups, and it is good to know in this instance that you feel we were able to make a significant contribution to your aerial photography techniques."—August 30, 1949, Gerald FitzGerald, chief topographic engineer.

"The Navy Department Board of Decorations and Medals at my direction has just completed an extensive review of the services of Commander Ronne in the antarctic. It was the opinion of the Board and the Chief of Naval Research that, as leader of this expedition, Commander Ronne distinguished himself by the outstanding results achieved, as evidenced by the excellent scientific reports prepared by the Office of Naval Research. His leadership and outstanding contributions to the Navy are indeed deserving of recognition."—December 13, 1949, Dan A. Kimball, Under Secretary of the Navy.

"The antarctic expedition under the leadership of Comdr. Finn Ronne has been extremely successful in its collection of data and preparation of reports on the scientific work."—April 18, 1950, Earl G. Droessler, acting head, Geophysics Branch, by direction of Chief of Naval Research.

STATEMENT ON COMDR. FINN RONNE, PROPOSED EXPEDITION LEADER

The leader of the expedition, Commander Ronne (recently selected for captain in the U. S. Naval Reserve) has a long background of exploration work. Perhaps I should give a little of Commander Ronne's background:

He was educated in Norway as an engineer. His father, Martin Ronne accompanied Capt. Roald Amundsen on the expedition which discovered the South Pole in 1911. He remained with Amundsen on his various polar expeditions for 20 year, and in 1928 accompanied Admiral Byrd on his first antarctic expedition.

In 1923 Commander Ronne came to the United States and became a citizen in 1929 and was associated with the Westinghouse Corp. for the next 16 years. In 1933–35 he was a member of the second Byrd expedition.

On the United States Antarctic Service Expedition, 1939–41, he was second in command of the east base on Palmer Peninsula, and discovered new land and delineated 450 miles of new coastline.

In May 1941 he was commissioned a lieutenant in the United States Naval Reserve, and assigned to the Bureau of Ships. In March 1944 he was promoted to commander. He was one of the group who proposed the first naval task force to go to the arctic in 1946, and was a Navy representative there when Thule, Greenland, was first established. From 1946 to 1948 Commander Ronne organized and conducted the last American expedition to the antarctic.

Chairman SALTONSTALL. Thank you very much; and with that understanding we will close this meeting.

Senator CASE. Mr. Chairman, in view of the captain's statement that the Department of Commerce wants to present a revised comment, I wonder if their first letter ought to be put in the record? I should think that might be withheld until they send their second letter, if they are preparing it. I have not seen the letter; I do not know what it says.

Chairman SALTONSTALL. That is satisfactory.

Senator RUSSELL. Mr. Chairman, I think we ought to follow the wishes of the Department in that respect. If they want to embrace it all within the second report we will withhold the first one, but if they make it complementary to the first report or supplementary, why than, that should be done.

Senator CASE. I certainly have no objection to that. I do not know whether the second letter is more or less favorable.

(The letter from the Department of the Navy follows:)

DEPARTMENT OF THE NAVY,
OFFICE OF THE JUDGE ADVOCATE GENERAL,
Washington 25, D. C.

Hon. LEVERETT SALTONSTALL,
Chairman, Committee on Armed Services,
United States Senate, Washington 25, D. C.

MY DEAR MR. CHAIRMAN: Your request for comment on the bill S. 3381, to authorize the President to provide assistance to an expedition to the Antarctic in furtherance of the interests of the United States, has been assigned to this Department by the Secretary of Defense for the preparation of a report thereon expressing the views of the Department of Defense.

The purpose of this measure is to provide assistance which will enable the American Antarctic Association, Inc., to conduct an expedition to the Antarctic during the period from December 1, 1954, to May 31, 1958. In addition to the appropriation of $200,000, the participation of the Government would consist of the loan of no more than 2 AGB class vessels, which is the Navy designation for an icebreaker, or N3–M–A1 class vessels, which are small freighters, no more than 4 aircraft, and, in addition, motor vehicles, and other surface transportation, and the facilities and equipment for the support of these items. In addition there would be required clothing, emergency gear, scientific instruments, cameras, communications equipment, housing and other supplies deemed necessary.

The Department of Defense objects to the enactment of this proposed legislation as written primarily because it appears that the major part of the costs of this expedition would be borne by the three military departments without reimbursement. While the Department of Defense has a continued interest in scientific projects and research in all parts of the world, the present importance of the Antarctic is more political than military and there is therefore no present military requirement which would justify the expenditure of funds and equipment and use of personnel required to support this expedition. Comments regarding specific cost considerations follow.

Provision would be made for the transfer of no more than two vessels of the N3–M–A1 or AGB class. The six N3–M–A1 class ships owned by the Navy are on loan to the Republic of South Korea at present, with no plans for their return in the foreseeable future. The Navy presently owns four AGB class ships all of which are now active. While 1 new construction AGB is scheduled

for delivery about April 1955, it is planned to deactivate 1 older vessel at that time. Since no ships of the above or other types are available in excess of presently planned commitments, the provision for 2 ships would probably require funds for activation of 2 ships of another category from the reserve fleet and would clearly require funds from some source for expenses while on loan.

This bill would authorize the President to provide certain consumable stores such as food, gasoline, and oil from Government stocks. The Department of Defense has no such stores in excess of its requirements, but could provide those materials on a reimbursable basis.

Further, it is difficult to justify the use of men and material on the basis of cold weather training. From a military standpoint, much more can be gained at less expense by operations in the Arctic where future military operations are a real possibility, and where there exists a continuing need to gain significant operational experience as a matter of urgency.

Finally, no coordination is apparent between this proposal and the plans currently under study for United States participation in the international geophysical year sponsored by the National Science Foundation. Extensive Antarctic phases are proposed in this program and participation in both programs would involve logistic support for Antarctic exploration in 1955, 1956, 1957, 1958, and 1959. It is not felt that the benefits which would accrue to the Department of Defense would justify expenditures of the funds of the services to this extent.

In summary, this proposed legislation does not provide reimbursement to the military departments for the expenses which it generates. Support of this expedition could only be had, therefore, by curtailing military requirements believed to be of a higher priority. Therefore, the Department of the Navy, on behalf of the Department of Defense, recommends against the enactment of S. 3381.

This report has been coordinated within the Department of Defense in accordance with procedures prescribed by the Secretary of Defense.

The Bureau of the Budget advises that there is no objection to the submission of this report and that it is opposed to the enactment of S. 3381 on the grounds that at this time support by the Federal Government for an expedition to the Antarctic should be limited to the one contemplated in connection with the International Geophysical Year program.

For the Secretary of the Navy.

Sincerely yours,

IRA H. NUNN,
Rear Admiral, USN,
Judge Advocate General of the Navy.

(The letter previously referred to of the Department of State follows:)

[CONFIDENTIAL [1]]

DEPARTMENT OF STATE,
Washington, July 1, 1954.

DEAR SENATOR SALTONSTALL: With further reference to your letter of May 7, 1954, the Department of State offers the following comments concerning S. 3381, to authorize the President to provide assistance to an expedition to the Antarctic in furtherance of the interests of the United States, copies of which were transmitted therewith.

The Department of State considers it highly desirable, consistent with the other objectives and general capacities of the Government, that the United States continue its past record of significant exploration and scientific investigation in the Antarctic. The proposed act, it appears, would aid in the fulfillment of those general purposes and is sufficiently broad to encompass whatever specific tasks may appear most important to the Government at such time as an expedition is undertaken. Among such tasks, it is believed that the mapping, further exploration and scientific investigation of the Antarctic are required if the true worth of the region is to be appraised on the basis of comprehensive and reliable data. This Department would be unable to offer the expedition special financial support within its existing appropriations. The foregoing comments are offered for such use as the committee may deem appropriate.

[The next succeeding paragraph was deleted for security reasons and is retained in the committee files.]

The Bureau of the Budget advises that while there is no objection to the submission of this report, it is opposed to the enactment of S. 3381 on the grounds that

[1] Classified portions of this letter have been deleted from the transcript as indicated.

at this time support by the Federal Government for an expedition to the Antarctic should be limited to the one contemplated in connection with the International Geophysical Year program.

Sincerely yours,

THRUSTON B. MORTON,
Assistant Secretary
(For the Secretary of State).

(The letter from the Department of the Treasury follows:)

THE GENERAL COUNSEL OF THE TREASURY,
Washington, June 23, 1954.

Hon. LEVERETT SALTONSTALL,
Chairman, Committee on Armed Services,
United States Senate, Washington, D. C.

MY DEAR MR. CHAIRMAN: Reference is made to your request for the views of this Department on S. 3381, a bill to authorize the President to provide assistance to an expedition to the Antarctic in furtherance of the interests of the United States.

The proposed legislation would authorize the President to provide assistance to the American Antarctic Association, Inc., a nonprofit, scientific organization incorporated under the laws of the State of Maryland, in order to enable the association to carry out an expedition to the Antarctic. The assistance that would be provided under the bill would consist of, among other things, the transfer of Government vessels, aircraft, and motor vehicles, the use of Government clothing, gear, scientific instruments, and other equipment, the furnishing of food, gasoline, oil, and other supplies from Government stocks for the expedition, and the participation of Government military and civilian personnel in the expedition.

The Department has no comments to make on the proposed legislation.

Very truly yours,

ELBERT P. TUTTLE, *General Counsel.*

(The letter of the Department of Commerce follows:)

THE SECRETARY OF COMMERCE,
Washington 25, June 10, 1954.

Hon. LEVERETT SALTONSTALL,
Chairman, Committee on Armed Services,
United States Senate, Washington, D. C.

DEAR MR. CHAIRMAN: This letter is in reply to your request of May 17, 1954, for the views of this Department with respect to S. 3381, a bill to authorize the President to provide assistance to an expedition to the Antarctic in furtherance of the interests of the United States.

It is our opinion that certain aspects of this legislation require clarification before action is taken thereon.

It is difficult to determine from the language of S. 3381 the magnitude of the expedition to be undertaken. If the amount of $200,000 authorized to be appropriated for the expedition is to represent a substantial portion of the entire cost of the expedition, it would appear that carrying out the mapping project outlined in the legislation would require an excessive proportion, if not all, of the resources available to the expedition to the detriment of other activities contemplated.

In this connection we believe that any expedition to the Antarctic should make every effort to establish additional geodetic control points in the area. Unless geodetic controls are established, photographs of such areas are worthless for mapmaking purposes. Aerial trimetrogon photographs such as would be authorized to be taken under the bill should therefore be made only in areas where geodetic control has been established. Establishment of additional control points would also enable the use in mapmaking of photographs of this region taken by earlier expeditions. If legislation for this purpose were enacted this Department would be willing to provide technical assistance with respect to the equipment necessary for establishing geodetic controls.

The bill is not explicit with respect to the other scientific studies which would be undertaken by the expedition. This lack of explicit provision for various scientific observations might result in their relegation to a minor position if the expedition should be undertaken in accordance with the present bill. We believe that radio, weather, gravity, magnetic, tidal, current and oceanographic observations would be of great assistance to the scientific world and would involve little additional expense to any scientific expedition to the Antarctic. If the bill is to

be favorably considered explicit provision should therefore be made for the taking of such observations, since the specific purposes set forth may be construed as limitations on the activities of the association. Of particular interest to this Department would be radio and meteorological observations and a series of tidal observations taken over the period of a year at one or more stations.

We suggest that your committee may wish to consult with an organization such as the National Academy of Sciences to assist in determining the need for, and relative importance of various scientific observations and endeavors which might be undertaken.

Section 3 (6) of the bill provides authority for Federal employees to join the expedition while on a duty status. In view of the rigid budgetary limitations in force in the Department, we believe that reimbursement to the Department for salaries of personnel engaged in such outside activities would be necessary if essential activities of the Department were not to be impaired.

Since the expedition may occur during the international geophysical year, July 1957 to December 1958, any plans for this expedition should be coordinated with the plans of the United States National Committee for the International Geophysical Year. This can be done through the offices of the National Research Council which is overseeing the program of the United States for the international geophysical year. The National Science Foundation is assisting the National Research Council in budgeting for the program.

Due to the urgency of this matter we have been unable to obtain the advice of the Bureau of the Budget as to the relationship of this report to the program of the President. We will seek such advice as notify the committee upon its receipt.

If we can be of further assistance in this matter, please call on us.

Sincerely yours,

SINCLAIR WEEKS,
Secretary of Commerce.

(The letter of the Department of the Interior follows:)

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington 25, D. C., July 15, 1954.

Hon. LEVERETT SALTONSTALL,
Chairman, Committee on Armed Services,
United States Senate, Washington 25, D. C.

MY DEAR SENATOR SALTONSTALL: Reference is made to your request for a report on S. 3381, a bill to authorize the President to provide assistance to an expedition to the Antarctic in furtherance of the interests of the United States.

We recommend the enactment of S. 3381.

The bill would authorize the President to provide assistance to the American Antarctic Association, Inc., a nonprofit scientific organization, in order to enable the association to carry out an expedition to the Antarctic in the period between December 1, 1954, and May 31, 1958, in furtherance of certain stated objectives. Such assistance could include making available the services of Government civilian and military personnel, the use of Government property and supplies, including but not limited to vessels, aircraft, and other transportation equipment, scientific supplies and equipment, and Government procurement services. An appropriation of $200,000 is authorized to carry out the provisions of the legislation.

The Department of the Interior because of its responsibilities in natural resources and scientific fields is interested in several of the stated objectives of the bill. Perhaps the primary interest at the present time is in completion of mapping of those areas of the Antarctic Continent for which aerial photographs taken by nationals of this country can be converted into maps as and when ground control points are established. The Department is also interested in adding to the presently limited knowledge of mineral resources and of fish and wildlife of the Antarctic area. Because this Department has exercised responsibility for the administration of public land and territorial areas held by the United States it has an interest in the extent of any legitimate claims to the territory and resources of Antarctica.

Enactment of S. 3381 would make possible the advancement of the several stated fields of interest to this Department. We believe that the expenditures involved and the use of Government property, supplies, and equipment within the discretion of the President are fully justified. Appropriate governmental coordination of the specific research or exploratory activities relating to procurement of the information, scientific data, and other specific objectives of national interest will be desirable. It appears that the President has adequate authority

to do this. The experience of this Department in connection with the United States Antarctic Service Expedition of 1939–40 would indicate that the President should be prepared to designate expressly the nature and extent of Government participation and to assign responsibility therefor immediately upon enactment of such legislation.

Since I am informed that there is a particular urgency for the submission of the views of the Department, this report has not been cleared through the Bureau of the Budget and, therefore, no commitment can be made concerning the relationship of the views expressed herein to the program of the President.

Sincerely yours,

F. E. WORMSER,
Assistant Secretary of the Interior.

(The letter from the Atomic Energy Commission follows:)

ATOMIC ENERGY COMMISSION,
Washington 25, D. C., July 9, 1954.

Hon. LEVERETT SALTONSTALL,
Chairman, Committee on Armed Services,
United States Senate, Washington, D. C.

DEAR SENATOR SALTONSTALL: This is in response to your letter of May 7, 1954, requesting the views and recommendations of the Atomic Energy Commission on S. 3381, to authorize the President to provide assistance to an expedition to the Antarctic in furtherance of the interests of the United States.

As we understand this bill it would authorize the President to provide assistance to a nonprofit scientific organization, known as the American Antarctic Association, Inc., to enable such association to carry out an expedition to the Antarctic some time between the dates of December 1, 1954, and May 31, 1958. This expedition would have among its purposes: (1) Advancing the legitimate claims of the United States to the territory and resources of the Antarctic Continent, (2) determining the mineral and other resources available, (3) establishing geodetic control points for mapmaking purposes, (4) photographing and exploring unknown portions of the continent, and (5) making scientific observations and surveys.

The Commission has considered the possibility that uranium may be present in the Antarctic. Because of the difficulties of exploration in that area and the lack of evidence as to the existence of uranium deposits, we have not felt that we would be justified in rendering substantial financial assistance to an expedition to this area. If, however, an expedition to the Antarctic were to be undertaken in the interest of the United States, we feel that it might be desirable to attach to the party one or more geologists trained in the techniques of searching for source materials. It would also be desirable for the Government to furnish surface and airborne radiometric equipment to such an expedition and to train members of the party in their use.

The Commission might also have an interest in such an expedition in connection with joint programs being carried out with the Department of Defense.

We doubt that the Atomic Energy Commission has sufficient interest in this project to warrant its being undertaken at Government expense because of possible contributions to our program. We do feel, however, that if such a project is undertaken the Commission would be interested in arrangements for financing certain activities of special interest.

The Bureau of the Budget advises that, while there is no objection to the submission of this report, it is opposed to the enactment of S. 3381 on the grounds that at this time support by the Federal Government for an expedition to the Antarctic should be limited to the one contemplated in connection with the international geophysical year program.

Sincerely yours,

LEWIS L. STRAUSS, *Chairman.*

Chairman SALTONSTALL. Thank you very much, Captain, and you will hear from us.

Senator CASE. Mr. Chairman, I would also like to see included in the record letters from Sir Hubert Wilkins; Senator John M. Butler of Maryland; Lowell Thomas; Edward W. Weyer, Jr., president, Explorers Club; and American Geographical Society.

Chairman SALTONSTALL. They will be inserted at this point.

(The letters are as follows:)

NEW YORK, N. Y., *May 12, 1954.*

Subject: Senate bill (S. 3381) with reference to Antarctic exploration.

The CHAIRMAN,
Senate Armed Services Committee,
Senate Office Building, Washington, D. C.

DEAR SIR: May I bring to your attention to this bill which has to do with provision for the continuation of the excellent record of American Antarctic exploration.

The value of the Antarctic Continent is no doubt great, but as yet it is inestimable and will remain so until the area has been explored and mapped.

It seems advisable that advantage should be taken of the experience gained by explorers now available and in my opinion Comdr. Finn Ronne, with his long association with the Antarctic and his success as leader of a recent Antarctic expedition, is a logical choice for the leader of this proposed effort to increase our knowledge.

Respectfully yours,

(Signed) Hubert Wilkins.
(Typed) Sir HUBERT WILKINS.

UNITED STATES SENATE,
COMMITTEE ON THE JUDICIARY,
May 17, 1954.

Hon. LEVERETT SALTONSTALL,
Chairman, Committee on Armed Services,
United States Senate, Washington, D. C.

DEAR LEV: As chairman of the Senate Committee on Armed Services, I hope that you will do everything possible to expedite consideration of S. 3381, to authorize the President to provide assistance to an expedition to the Antarctic in furtherance of the interests of the United States.

A resident of my State, Comdr. Finn Ronne, accompanied Admiral Byrd in 1933, was second in command of the East Base on the 1939 expedition, and led the 1946 expedition to the Antarctic. He assures me of the immediate need for this new expedition.

It is essential, in my opinion, that our claims in Antarctic be definitely defined and established. The untold benefits which might be derived from this land in minerals and other resources, together with its possible strategic value in the future, make early and favorable consideration of this legislation of the greatest importance.

Sincerely yours,

(Signed) John
(Typed) JOHN MARSHALL BUTLER.

PAWLING, N. Y., *May 25, 1954.*

DEAR SENATOR SALTONSTALL: May I add a line in support of bill S. 3381 on behalf of an American Antarctic expedition under the leadership of Comdr. Finn Roone. Having already done so much to open up the Antarctic it seems to me we ought to do our utmost to clear this up before the Russians do some major claim jumping. As you, of course, know far better than I, the Kremlin has been making a tremendous inroad on the whaling industry, in those southern waters. And, the next step will be for them to want to take over the Antarctic Continent.

Very respectfully yours,

LOWELL THOMAS.

NEW YORK 24, N. Y., *June 16, 1954.*

The CHAIRMAN,
The Senate Armed Services Committee,
Senate Office Building, Washington 25, D. C.

DEAR SIR: Because I have the highest opinion of Comdr. Finn Ronne and believe in the importance of the objectives of his proposed 1954–58 Antarctic Expedition, I want to say a word in support of Senate bill 3381, which would authorize governmental aid for this work.

You no doubt know how well qualified Commander Ronne is. He has the finest talents for scientific work in the Antarctic and possesses in rare degree the ability

to plan and organize an expedition of this sort. His qualities of leadership will, in my opinion, insure the success of this expedition. May I add that in over 25 years in the Explorers Club, I have gotten to know most of the top names on his roster and can vouch for the wisdom and competence of his associates in the undertaking.

Because our country would benefit abundantly from the objectives of this expedition and because it is in the very fiber of these men to achieve success under Commander Ronne's fine leadership, I hope you will feel as whole-heartedly in favor of the expedition as I do.

Sincerely yours,

EDWARD M. WEYER, Jr.,
President, Explorers Club.

AMERICAN GEOGRAPHICAL SOCIETY,
New York, N. Y., June 28, 1954.

In re S. 3381

Hon. LEVERETT SALTONSTALL,
Chairman, Armed Services Committee,
Senate Office Building, Washington 25, D. C.

DEAR SIR: The American Geographical Society is sponsoring Comdr. Finn Ronne's proposal to undertake further Antarctic exploration as outlined in his operational plan and embodied in the provisions of bill S. 3381. This society was also privileged to sponsor Commander Ronne's Antarctic expedition of 1946 to 1948 as well as other expeditions of previous American explorers to that region.

Antarctica is the last continent to be explored and it seems highly fitting that expeditions from the United States should continue to assume an important part in this effort. A vast amount of scientific information remains to be learned in regard to such aspects as the location and extent of the ice-free areas, the continental ice sheet, and meteorology of the region and its effect on weather in other parts of the world, routes of travel, and economic resources. Commander Ronne's requirements appear modest in comparison to the potential value of the features he will investigate. He has shown himself to be a capable, experienced, and resourceful leader.

This society respectfully urges the Senate Armed Services Committee to report favorably on this bill S. 3381.

Yours very sincerely,

WILLIAM O. FIELD,
Head, Department of Exploration and Field Research
(For the Director).

(Whereupon, at 11:40 a. m., the committee adjourned.)